

CLAIMS

1 (Amended) An image information encoding apparatus adapted for encoding an input image signal at least including intraframe encoding image, interframe forward predictive encoding image and interframe bi-directional predictive encoding image by orthogonal transform and motion prediction/compensation processing to generate image compressed information,

the image information encoding apparatus comprising:

motion prediction/compensation means for performing motion prediction/compensation processing based on different interpolation methods with respect to the interframe forward predictive encoding image and the interframe bi-directional predictive encoding image,

wherein the motion prediction/compensation means performs motion prediction/compensation processing by using a first filter with respect to the interframe forward predictive encoding image, and performs motion prediction/compensation processing by using a second filter having the number of taps lesser than that of the first filter, or linear interpolation with respect to the interframe bi-directional predictive encoding image.

2 (Amended) The image information encoding apparatus as set forth in claim 1,

wherein the motion prediction/compensation means selects, as an interpolation method with respect to the interframe bi-directional predictive

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encoding image, a method in which operation quantity and the number of memory accesses are reduced to more degree as compared to the interframe forward predictive encoding image.

3 (Amended) The image information encoding apparatus as set forth in claim 1,

wherein the motion prediction/compensation means have the same pixel accuracy of motion prediction/compensation processing at the interframe forward predictive encoding image and the interframe bi-directional predictive encoding image.

4 (Amended) The image information encoding apparatus as set forth in claim 1,

wherein the motion prediction/compensation means can select motion prediction/compensation processing by different pixel accuracies at the interframe forward predictive encoding image and the interframe bi-directional predictive encoding image.

5 (Amended) The image information encoding apparatus as set forth in claim 1,

wherein the motion prediction/compensation means serves to perform motion prediction/compensation of $1/4$ pixel accuracy, and performs, with respect to the interframe forward predictive encoding image, interpolation processing of $1/2$ pixel accuracy by using filter coefficients having 6 taps expressed below

$\{1, -5, 20, 20, -5, 1\}/32$

to perform interpolation processing of 1/4 pixel accuracy by linear interpolation on the basis of generated pixels.

6 (Amended) The image information encoding apparatus as set forth in claim 1,

wherein the motion prediction/compensation means performs motion prediction/compensation processing of 1/4 pixel accuracy by linear interpolation with respect to the interframe bi-directional predictive encoding image.

7 (Amended) The image information encoding apparatus as set forth in claim 4,

wherein the motion prediction/compensation means performs motion prediction/compensation processing of 1/4 pixel accuracy with respect to the interframe forward predictive encoding image, and performs motion prediction/compensation processing of 1/2 pixel accuracy with respect to the interframe bi-directional predictive encoding image.

8 (Amended) The image information encoding apparatus as set forth in claim 4,

wherein information relating to pixel accuracy of motion prediction/compensation processing are respectively embedded in MotionResolution field at RTP layer within the image compressed information with respect to the interframe forward predictive encoding image and the interframe

bi-directional predictive encoding image.

9 (Amended) An image information encoding method of encoding an input image signal at least including intraframe encoding image, interframe forward predictive encoding image and interframe bi-directional predictive encoding image by orthogonal transform and motion prediction/compensation processing to generate image compressed information,

the image information encoding method including:

a motion prediction/compensation step of performing motion prediction/compensation processing based on different interpolation methods with respect to the interframe forward predictive encoding image and the interframe bi-directional predictive encoding image,

wherein the motion prediction/compensation step comprises: performing motion prediction/compensation processing by using a first filter with respect to the interframe forward predictive encoding image, and performing motion prediction/compensation processing by using a second filter having the number of taps lesser than that of the first filter or linear interpolation with respect to the interframe bi-directional predictive encoding image.

10 (Amended) A program for allowing computer to execute processing which encodes an input image signal at least including intraframe encoding image, interframe forward predictive encoding image and interframe bi-directional predictive encoding image by orthogonal transform and motion

prediction/compensation processing to generate image compressed information,
the program including:

a motion prediction/compensation step of performing motion prediction/compensation processing based on different interpolation methods with respect to the interframe forward predictive encoding image and the interframe bi-directional predictive image,

wherein the motion prediction/compensation step comprises: performing motion prediction/compensation processing by using a first filter with respect to the interframe forward predictive encoding image, and performing motion prediction/compensation processing by using a second filter having the number of taps lesser than that of the first filter or linear interpolation with respect to the interframe bi-directional predictive encoding image.

11 (Amended) An image information decoding apparatus adapted for decoding, by inverse-orthogonal transform and motion prediction/compensation, an image compressed information at least including intraframe encoding image, interframe forward predictive encoding image and interframe bi-directional predictive encoding image which have been generated at an image information encoding apparatus,

the image information decoding apparatus comprising:

motion prediction/compensation means for performing motion prediction/compensation processing based on different interpolation methods with

respect to the interframe forward predictive encoding image and the interframe bi-directional predictive encoding image,

wherein the motion prediction/compensation means performs motion prediction/compensation processing by using a first filter with respect to the interframe forward predictive encoding image, and performs motion prediction/compensation processing by using a second filter having the number of taps lesser than that of the first filter, or linear interpolation with respect to the interframe bi-directional predictive encoding image.

12 (Amended) The image information decoding apparatus as set forth in claim 11,

wherein the motion prediction/compensation means selects, as an interpolation method with respect to the interframe bi-directional predictive encoding image, a method in which operation quantity and the number of memory accesses are reduced to more degree as compared to the interframe forward predictive encoding image.

13 (Amended) The image information decoding apparatus as set forth in claim 11,

wherein the motion prediction/compensation means have pixel accuracies of motion prediction/compensation processing which are equal to each other at the interframe forward predictive encoding image and the interframe bi-directional predictive encoding image.

14 (Amended) The image information decoding apparatus as set forth in claim 11,

wherein the motion prediction/compensation means are adapted so that motion prediction/compensation processing by different pixel accuracies can be selected at the interframe forward predictive encoding image and the interframe bi-directional predictive encoding image.

15 (Amended) The information decoding apparatus as set forth in claim 11,

wherein the motion prediction/compensation means serves to perform motion prediction/compensation of 1/4 pixel accuracy, and generates interpolation processing of 1/2 pixel accuracy by using filter coefficients of 6 taps expressed below

$$\{1, -5, 20, 20, -5, 1\}/32$$

with respect to the interframe forward predictive encoding image to perform interpolation processing of 1/4 pixel accuracy by linear interpolation on the basis of generated pixels.

16 (Amended) The image information decoding apparatus as set forth in claim 11,

wherein the motion prediction/compensation means performs motion prediction/compensation processing of 1/4 pixel accuracy by linear interpolation with respect to the interframe bi-directional predictive encoding image.

17 (Amended) The image information decoding apparatus as set forth in claim 14,

wherein the motion prediction/compensation means performs motion prediction/compensation processing of $1/4$ pixel accuracy with respect to the interframe forward predictive encoding image, and performs motion prediction/compensation processing of $1/2$ pixel accuracy with respect to the interframe bi-directional predictive encoding image.

18 (Amended) The image information decoding apparatus as set forth in claim 14,

wherein information relating to pixel accuracy of motion prediction/compensation processing are respectively embedded in MotionResolution field at RTP layer within the image compressed information with respect to the interframe forward predictive encoding image and the interframe bi-directional predictive encoding image.

19 (Amended) An image information decoding method of decoding, by inverse-orthogonal transform and motion prediction/compensation processing, image compressed information at least including intraframe encoding image, interframe forward predictive encoding image and interframe bi-directional predictive encoding image which have been generated at an image information encoding apparatus,

the image information decoding method including a

prediction/compensation step of performing motion prediction/compensation processing based on different interpolation methods with respect to the interframe forward predictive encoding image and the interframe bi-directional predictive encoding image,

wherein the motion prediction/compensation step comprises: performing motion prediction/compensation processing by using a first filter with respect to the interframe forward predictive encoding image, and performing motion prediction/compensation processing by using a second filter having the number of taps lesser than that of the first filter or linear interpolation with respect to the interframe bi-directional predictive encoding image.

20 (Amended) A program for allowing computer to execute a processing which decodes, by inverse-orthogonal transform and motion prediction/compensation processing, image compressed information at least including intraframe encoding image, interframe forward predictive encoding image and interframe bi-directional predictive encoding image which have been generated at an image information encoding apparatus,

the program including a motion prediction/compensation step of performing motion prediction/compensation processing based on different interpolation methods with respect to the interframe forward predictive encoding image and the interframe bi-directional predictive encoding image,

wherein the motion prediction/compensation step comprises: performing

motion prediction/compensation processing by using a first filter with respect to the interframe forward predictive encoding image, and performing motion prediction/compensation processing by using a second filter having the number of taps lesser than that of the first filter or linear interpolation with respect to the interframe bi-directional predictive encoding image.

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